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SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, DC 20037-3213

EXAMINER	
HUNG, YUBIN	
ART UNIT	PAPER NUMBER
2625	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/040,621	LIM ET AL.	
	Examiner	Art Unit	
	Yubin Hung	2625	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14-18,23 and 24* is/are rejected.

7)☒ Claim(s) *13, 19-22 and 25-35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *22 February 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/2/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Response to Amendment/Arguments

1. This action is in response to amendment filed 02/22/05, which has been entered.

2. Claims 1-35 are still pending, with new claims 34 and 35 being added by the 02/22/05 amendment.

3. In view of the applicant's amendment, the objections to the specification and the drawings have been withdrawn. However, new issues have been found as a result of the amendment; see below.

4. In view of the applicant's amendment, the 35 USC § 112 rejections to claims 11, 13, 26 and 33 are withdrawn. The rejection of claim 17 is maintained. New 35 USC § 112 rejection of claim 33 has been made as a result of the amendment; see below.

5. Applicant requests that a reference teaching the distance metric recited in claim 17 be provided (page 26, 2nd paragraph of the amendment). A reference, page 209 of *Digital Picture Processing*, Vol. 2, 2nd ed., 1982, by A. Rosenfeld and A.C. Kak is provided with this Office action. Applicant's attention is directed to lines 9-12 of page 209.

6. Applicant's arguments, see page 25, 2nd paragraph, lines 5-7; page 27, lines 3-5; page 27, 2nd paragraph, lines 6-10; and page 28, 2nd paragraph of the amendment filed 02/22/05, with respect to the rejections of claim 1 under 35 U.S.C. 102 and claims 2, 19, 25 and 29-31 under 35 U.S.C. 103 have been fully considered and are persuasive. Therefore, the rejections have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ganapathy et al. (US 6,411,953). See below.

7. Other arguments made by Applicant in the amendment filed 02/22/05 have been fully considered but they are not persuasive; see below.

8. In remarks Applicant argued in substance:

8.1 (regarding claim 19) *that one of ordinary skill in the art would not have turned to Nakao to design an image retrieval system because when attempting to recognize characters different consideration comes into play, i.e., color does not play a big role when attempting to recognize characters. (P. 26, last paragraph, lines 1-4.)*

However, character recognition very often requires a character segmentation step that, in turn, often uses the color of the characters (typically black in a document) as an important feature. Therefore the argument is not persuasive.

DETAILED ACTION

Drawings

9. The drawings are objected to because a descriptive title and labels for the two axes (the left and the bottom borders of the bounding box, the meaning of those numbers are not clear without descriptive labels) for Figure 5 are missing. Note that the replacement sheet containing amended Figure 5 (filed with the 02/22/05 amendment) has not been labeled "Replacement Sheet" in the page header.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. **The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures**. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

10. The disclosure is objected to because of the following informalities:

- P. 7, line 8; P. 18, Eq. (8); amended claim 17, line 4: $\sigma(m_{ij})$ and $\sigma(\sigma_{ij})$ are not properly defined

  [Note: The definition provided in pages 2, 5 and 12 of the amendment does not make sense since there can be only one mean (say m_{ij}) and one standard deviation (say σ_{ij}) for each single (i,j)-region (i.e., the region corresponding to the i-th frequency channel and the j-th orientation channel); therefore $\sigma(m_{ij})$ and $\sigma(\sigma_{ij})$ as defined in the amendment will be m_{ij} and 0, respectively. Could $\sigma(m_{ij})$ and $\sigma(\sigma_{ij})$ stand for the standard deviations of all m_{ij}'s and σ_{ij}'s, respectively (of *all* (i,j)-regions of either image I_1 or I_2?)]

- P. 11, line 6; P. 24, line 16; claim 33, last line: the ω with a tilde ("~") over it is not defined. Consider change all instances to ω without the tilde

  [Note: The amendment with respect to this item as shown on pages 4 and 6 is not readable, probably due to improper text formatting]

- P. 23, Eq. (15) and claim 31, line 4: the $V_{m,k}$ on the right-hand side of the equation should have been "V_k"

  [Note: The amendment with respect to this item as shown on page 6 is not readable, probably due to improper text formatting]

- Amended claim 17 (page 11 of the 02/22/05 amendment): In line 4 the equation is printed over the page number

Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Amended claim 33 recites $d'_c(I_q,I_1)$ in line 6. There is insufficient antecedent basis for this limitation in the claim. **[Note: for examination purpose, $d'_c(I_q,I_1)$ will be interpreted as $d_c(I_q,I_1)$.]**

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US 6,463,432) and further in view of Ganapathy et al. (US 6,411,953).

16. Regarding claim 2, and similarly claim 1, Murakawa discloses a method for retrieving a data image similar to a query image

(a) calculating a plurality of color distances and a plurality of texture distances between a query image and each data image in the image database
[Fig. 3: S13, S14; Fig. 7: S1407; Fig. 8: V142; Col. 8, lines 30-45. Note that the distances are calculated for the key image and each of the object images for the color and the texture features]

(b) weighting each of the calculated color distances and texture distances with a respective predetermined first weighting factor
[Fig. 8: V141 (calculate predetermined weighting factors), V143 (weight the color and the texture distances to produce *new (i.e., weighted) color and texture distances*); Col. 7, lines 57-65]

(d) determining the data image similar to the query image using the feature distance
[Fig. 7: S1409, S1410; Fig. 8: V144; Col. 9, lines 1-25]

Murakawa does not expressly disclose

(c) calculating a feature distance between the query image and each data image by combining the weighted color distances and the weighted texture distances by *applying a second set of differing factors that reflect* human visual perception attributes

However, Ganapathy discloses combining distance measures (e.g., can be the weighted color and texture distances) using weighting factors that match human perception. [Col. 16, lines 2-26.]

Murakawa and Ganapathy are combinable because they both have aspects that are from the same field of endeavor feature extraction with application to image retrieval.

At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify Murakawa with the teaching of Ganapathy by combining the weighted color and texture distances using another set of weighting factors that match human perception. The motivation would be to retrieve an image that is most similar to the query image from a human's, rather than a machine's perspective.

Therefore, it would have been obvious to combine Murakawa with Antipathy to obtain the invention of claim 2.

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17. Claims 3, 4, 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US 6,463,432) and Ganapathy et al. (US 6,411,953), as applied to claims 1, 2 above, and further in view of Tanaka (US 6,519,360) and Murching et al. (US 6,693,962).

18. Regarding claim 3, the combined invention of Murakawa and Ganapathy discloses all limitations of its parent, claim 2.

The combined invention of Murakawa and Ganapathy does not expressly disclose

(pa-1) segmenting the query image and each data image into a plurality of first regions using a plurality of color features
(pa-2) determining a plurality of sample regions in the query image and each data image for extraction of a plurality of texture features

However, Tanaka teaches/suggests segmenting an image into multiple regions using color groups (as color features). [See Fig. 1: 103; Col. 3, lines 56-63. Note that each color group defines a region of pixels. Note further that Fig. 1 clearly shows that both the query image and data images are segmented in this manner.] In addition, Murching teaches/suggests dividing an image into non-overlapping rectangular blocks and then merge them into spatially contiguous groups of blocks (i.e., sample region) homogeneous in texture. [See Fig. 1 and Col. 2, lines 13-20.]

Murakawa, Ganapathy, Tanaka and Murching are combinable because they all have aspects that are from the same endeavor of feature extraction.

At the time of the invention, it would have been obvious to one of ordinary to modify the combined invention of Murakawa and Ganapathy with the teaching of Tanaka and Murching by segmenting an image into multiple regions using color groups and dividing an image into spatially contiguous groups of blocks (i.e., sample region) homogeneous in texture. The motivation would have been by so doing feature extraction from the regions can be carried in parallel and therefore increase the processing speed.

Therefore, it would have been obvious to combine Tanaka and Murching with Murakawa and Ganapathy to obtain the invention of claim 3.

19. Regarding claim 4, the combined invention of Murakawa, Ganapathy Tanaka and Murching further discloses

(a1) generating a plurality of color vectors of the first regions using the color features and calculating a plurality of color distances
[Tanaka: Col. 3, lines 60-63 (color vector); Fig. 1, ref. 105 and Fig.6, ref. S4 (calculating color distances). Note that a representative color, consisting of several elements, is considered as a color vector]

(a2) generating a plurality of texture vectors of the sample regions using the texture features and calculating a plurality of texture distances
[Murching: Col. 5, lines 11-14. Note that per the analysis of claim 2 Murakawa teaches calculating texture distances]

20. Regarding claims 18, Murching further discloses

(pb-1) obtaining a grid map of the query image and each data image
[Col. 2, lines 13-15. Note that the blocks resulted from the division is considered a grid map.]

(pb-2) obtaining a texture sample of a desired size for each sample region based on the grid map
[Col. 2, lines 13-20. Note that each resultant region is consider a texture sample (since it's homogeneous in texture) and is of a desired size in the sense of achieving the homogeneity]

21. Regarding claim 23, Murakawa further discloses

- (b-1) placing each of the color distances and the texture distances in a 2-dimensional vector space, each vector space defined by the respective distances and associated predetermined weighting factors
[Fig. 8, refs. V141, V142. Note that a feature (color or texture) and its corresponding weight constitute a point in a 2-D vector space]
- (b-2) projecting the result of the placement onto the 2-dimensional vector spaces onto a l-dimensional distance space based on the human visual perception mechanism
[Fig. 8, V143; Col. 8, lines 62-67. Note that per the equation at the bottom of Col. 8, the total similarity (a 1-dimension distance) is a weighted sum of the color distance and the texture distance and there is compatible with human perception because more weight is given to the more dominant feature]

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22. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US 6,463,432), Ganapathy et al. (US 6,411,953), Tanaka (US 6,519,360) and Murching et al. (US 6,693,962), as applied to claims 3, 4, 18 and 23 above, and

further in view of Deng et al. ("Peer Group Filtering and Perceptual Color Image Quantization," *Proc. 1999 IEEE International Symposium on Circuits and Systems, Vol. 4*, 30 May-2 June 1999, pp. 21-24, **referred to as Deng-PGF**).

23. Regarding claim 5, and similarly claim 6, the combined invention of Murakawa, Ganapathy, Tanaka and Murching discloses all limitations of its parent, claim 3.

The combined invention of Murakawa, Ganapathy, Tanaka and Murching does not expressly disclose that

- (claim 5) wherein step (pa-1) comprises quantizing a plurality of color vectors of the query image and each data image
- (Claim 6) performing a peer group filtering on the query image and each data image for noise removal and smoothing effects
- (claim 6) clustering a plurality of filtered pixel values of the query image and each data image using a generalized Lloyd algorithm

However, Deng-PGF teaches/suggests performing a peer group filtering on the images followed by an application of the generalized Lloyd algorithm for clustering and vector quantization. [See P. 22, Sect. 3, line 17 through P. 23, left col., line 5.]

The combined invention of Murakawa, Ganapathy, Tanaka and Murching are combinable with Deng-PGF because they all have aspects that are from the same endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary to modify the combined invention of Murakawa, Ganapathy, Tanaka and Murching with the teaching

of Deng-PGF by performing a peer group filtering on the images followed by an application of the generalized Lloyd algorithm for clustering and vector quantization. The motivation would have been because noise removal and smoothing are important to many image processing applications and the commonly used approaches have drawbacks such as their indiscriminate application to all pixels (including the non-corrupted ones) or blurring edges and other details-problems for which Deng's approach can address. (See Deng-PGF: P. 21, left Col., Introduction.)

Therefore, it would have been obvious to combine Deng-PGF with Murakawa, Ganapathy, Tanaka and Murching to obtain the inventions of claims 5 and 6.

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24. Claims 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US 6,463,432), Ganapathy et al. (US 6,411,953), Tanaka (US 6,519,360), Murching et al. (US 6,693,962) and Deng et al. ("Peer Group Filtering and Perceptual Color Image Quantization," *Proc. 1999 IEEE International Symposium on Circuits and Systems, Vol. 4*, 30 May-2 June 1999, pp. 21-24, referred to as Deng-PGF), as applied to claims 5, 6 above, and further in view of Deng et al. ("Color Image Segmentation," *1999 IEEE Conf. On Computer Vision and Pattern Recognition, Vol. 2*, 23-25 June 1999, pp. 446-451, **referred to as Deng-CIS**).

25. Regarding claim 7 the combined invention of Murakawa, Ganapathy, Tanaka, Murching and Deng-PGF discloses all limitations of its parent, claim 5.

The combined invention of Murakawa, Ganapathy, Tanaka, Murching and Deng-PGF does not expressly disclose that

- defining a J-value indicating a color uniformity in each pixel of a plurality of pixels of the query image and each data image, which have undergone quantization
- storing the J-value in each pixel of the query image and each data image to obtain a plurality of J-images
- segmenting each J-image into a plurality of second regions by a predetermined segmentation method
- repeating the segmentation of each J-image to obtain a map of one or more over-segmented regions for each J-image
- obtaining a final map for each J-image by merging the over-segmented regions based on a correlation of color

However, Deng-CIS teaches/suggests defining J-values, obtaining J-images, iteratively segmenting the obtained J-images and obtaining a final map for the J-image by merging. [See P. 449, Fig. 5; P. 449, left col., line 1 – P. 450, left col., line 9.]

The combined invention of Murakawa, Ganapathy, Tanaka, Murching and Deng-PGF are combinable with and DEG-CIS because they all have aspects that are from the same endeavor of image processing.

At the time of the invention, it would have been obvious to one of ordinary to modify the combined invention of Murakawa, Ganapathy, Tanaka, Murching and Deng-PGF with the teaching of Deng-CIS by defining J-values, obtaining J-images, iteratively segmenting the obtained J-images and obtaining a final map for the J-image by

merging. The motivation would have been because this approach is designed to handle segmentation difficulty that may occur due to the presence of color texture patterns. [See Deng-CIS: P. 446, Introduction.]

Therefore, it would have been obvious to combine Deng-CIS with Murakawa, Ganapathy, Tanaka, Murching and Deng-PGF to obtain the invention of claim 7.

26. Regarding claim 8, Tanaka further discloses

- indexing a feature vector space by a representative color and a percentage of the representative color in each second region
  [Col. 3, lines 56-63. Note that the number of pixels represented by the representative color is equivalent to its percentage since the total number of pixels in the image is known]

27. Regarding claim 9, it is similarly analyzed and rejected as per the analyses of claims 6 and 7. [Specifically, Fig. 5 of Deng-CIS teaches/discloses both increasing and merging of segments (i.e., clusters).]

28. Regarding claim 12, Tanaka further discloses

- assigning a plurality of representative colors to a plurality of grid points in a color space having a grid structure; and storing the result of the assignment as a table in a database
  [Fig. 5A. Note that the table in Fig. 5A teaches/suggests a grid structure where the (representative color, percentage) index can be stored. Note further that it is obvious in a database application to store required information in the database]

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29. Claims 10, 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US 6,463,432), Ganapathy et al. (US 6,411,953), Tanaka (US

6,519,360) and Murching et al. (US 6,693,962), as applied to claims 3, 4, 18 and 23 above, and further in view of Cieplinski (US 6,801,657).

30. Regarding claims 10 and 11, the combined invention of Murakawa, Ganapathy, Tanaka and Murching discloses all limitations of its parent, claim 4.

The combined invention of Murakawa, Ganapathy, Tanaka and Murching does not expressly disclose

- (claim 10) the color features are expressed by a color feature descriptor $f_c(I_k)$ with a representative color vector and a percentage of the representative color vector for each first region
- (claim 11) the color feature descriptor $f_c(I_k)$ is expressed by:
  $f_c(I_k)= \{(C_{k1},P_{k1}),(C_{k2},P_{k2}),\ldots,(C_{kn},P_{kn})\}$
  wherein k is a positive integer indicating a serial number of each region, C_{ki} is an i-th representative color vector of a k-th region (i = 1,2, .., N_k) , P_{ki} is a percentage of the i-th color representative color vector in the k-th region, and N_k is the number of the representative color vectors in the k-th region

However, Cieplinski teaches/suggests s representing each region with a descriptor composing of one or more representative colors and the percentages of pixels with the respective representative colors. [See Col. 2, line 56 – Col. 3, line 10.]

The combined invention of Murakawa, Ganapathy, Tanaka and Murching are combinable with Cieplinski because they all have aspects that are from the same endeavor of feature extraction.

At the time of the invention, it would have been obvious to one of ordinary to modify the combined invention of Murakawa, Ganapathy, Tanaka and Murching with the teaching

of Cieplinski by representing each region with a descriptor composing of one or more representative colors and the percentages of pixels with the respective representative colors. The motivation would have been to overcome shortcomings of commonly used representations such as those based on histograms as Cieplinski indicated in Col. 1, line 63 – Col. 2, line 5.

Therefore, it would have been obvious to combine Cieplinski with Murakawa, Ganapathy, Tanaka and Murching to obtain the inventions of claims 10 and 11.

31. Regarding claim 24, Cieplinski further discloses

- the predetermined weighting factor to the color distance is determined based on a distribution of representative colors
[Col. 2, lines 63-67]

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32. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murakawa (US 6,463,432), Ganapathy et al. (US 6,411,953), Tanaka (US 6,519,360) and Murching et al. (US 6,693,962), as applied to claims 3, 4, 18 and 23 above, and further in view of Ma et al. ("Texture Features and Learning Similarity," *Proc. 1996 IEEE Conf. on Computer Vision and Pattern Recognition*, 18-20 June 1996, pp. 425-430).

33. Regarding claims 14-16, the combined invention of Murakawa, Ganapathy, Tanaka and Murching discloses all limitations of its parent, claim 4.

The combined invention of Murakawa, Ganapathy, Tanaka and Murching does not expressly disclose

- (claim 14) step (a2) uses a Gabor function
- (claim 15) in step (a2), the texture vectors of the plurality of sample regions are generated using the Gabor function having N frequency channels and M orientation channels, where N and M are both predetermined positive integers
- (claim 16) (*for each region*) the texture features are expressed by a texture feature descriptor consisting of the set of (mean, deviation) pairs of a plurality of pixel values corresponding to the i-th frequency channel and the j-th orientation channel for all i and j values.

However, Ma teaches/suggests using multiple Gabor functions (with different frequency and orientation) to generate texture features and express them by the recited texture feature descriptor. [P. 426, Sect. 2.1. Note that there are S (= 4) frequency channels and K (= 6) orientation channels.]

The combined invention of Murakawa, Ganapathy, Tanaka and Murching are combinable with Ma because they all have aspects that are from the same endeavor of feature extraction.

At the time of the invention, it would have been obvious to one of ordinary to modify he combined invention of Murakawa, Ganapathy, Tanaka and Murching with the teaching of Ma by using multiple Gabor functions (with different frequency and orientation) to generate texture features and express them by the recited texture feature descriptor. The motivation would have been because it is well known in the art that Gabor filters are considered as orientation and scale tunable and texture features extracted using Gabor

filters have been empirically shown to perform better in image retrieval as indicated by Ma in P. 425, Sect. 2, lines 4-7 and P. 426, Sect. 2.3.

Therefore, it would have been obvious to combine Ma with Murakawa, Ganapathy, Tanaka and Murching to obtain the inventions of claims 14-16.

34. Claim 17 is rejected because the similarity measure defined there is the well-known city-block distance (i.e., the L_1 metric) of the normalized feature descriptors of the regions being compared.

Allowable Subject Matter

35. Claims 13,19-22, 25-32 and 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

36. Claims 33 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and in independent form including all of the limitations of the base claim and any intervening claims.

37. The following is a statement of reasons for the indication of allowable subject matter:

- Regarding claim 13, prior art of record does not teach or suggest the use of the recited distance metric
- Regarding claim 19, prior art of record does not teach or suggest setting a value for a sub-rectangle depending on whether it is completely inside a region
- Regarding claims 25 and 29, while references from prior art exist that teach all their respective limitations, they belong to different fields of endeavor and therefore cannot be properly combined
- Regarding claim 26, prior art of record does not teach or suggest the use of the specific distance metric
- Regarding claim 27, prior art of record does not teach or suggest calculating a weighting factor to be applied to each texture distance using areas from the inquiry image and a data image
- Regarding claim 33, prior art of record does not teach or suggest the use of the recited distance metric
- Regarding claim 34, closest art of record does not teach or suggest determining the weighting factors basing on regions from both the query image and the data image. (Murakawa only uses the query image to determine the weighting factor.)

Conclusion and Contact Information

38. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Shin et al. (US Pub. 2002/0006221) – discloses a method for measuring similarly between images
- Troynaker (US 6,563,959) – discloses an image retrieval method using perceptual similarity
- Chang (US 6,865,302) – discloses a perception-based image retrieval method
- Zhu et al. (US 6,345,274) – discloses a method for subjective image content similarity-based retrieval

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yubin Hung whose telephone number is (571) 272-7451. The examiner can normally be reached on 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Yubin Hung
Patent Examiner
August 5, 2005

BHAVESH M. MEHTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600